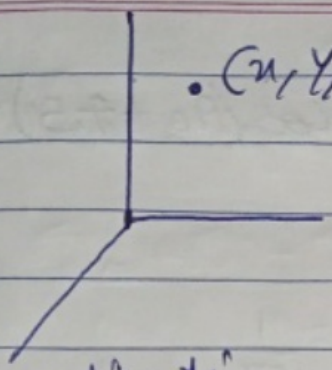
Date.
Page No.

3D



direction cosines
$\cos\alpha = \frac{x}{|\vec{r}|}$ } in vector

direction cosines (when direction ratio is given)
(a, b, c)

$$\frac{l}{a} = \frac{m}{b} = \frac{n}{c} = k$$

$l = ak \quad m = bk \quad n = ck$

$l^2 + m^2 + n^2 = 1$

$$k = \pm \frac{1}{\sqrt{a^2+b^2+c^2}}$$

$$l = \pm \frac{a}{\sqrt{a^2+b^2+c^2}}$$

$$m = \pm \frac{b}{\sqrt{a^2+b^2+c^2}}$$

$$n = \pm \frac{c}{\sqrt{a^2+b^2+c^2}}$$

Total 6 direction ratios to prove 11
eg $AB = (x_2 - x_1)(y_2 - y_1)(z_2 - z_1)$